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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,965	06/30/2000	Takahisa Kurahashi	1883-36	9969

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EXAMINER

KANG, DONGHEE

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/607,965

Applicant(s)

KURAHASHI ET AL.

Examiner

Donghee Kang

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 4, 7 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 4, 7, & 9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the phrase "a current constricting structure of an insulating layer" in claim 3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claims **6, 8 & 10** are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 6, 8 & 10 have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "a multi-layer reflecting film on the GaAs substrate side... and a multi-layer reflecting film opposite to the GaAs substrate side" is unclear what is mean "substrate side" and "opposite to the substrate side". Opposite, generally, means set over against something that is at the other end or side of an intervening line or space. In this instant application, both multi-layer reflecting films are located on the same side of substrate. The examiner interprets a multi-layer reflecting film on the GaAs substrate side and a multi-layer reflecting film opposite to the GaAs substrate side as a bottom and top reflecting films, respectively.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3 & 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugawara et al. (US 5,466,950) in view of Dutta (5,821,569).

Regarding claim 1, Sugawara et al. teach a semiconductor light emitting element having (Fig.7) a resonator composed of paired multi-layer reflecting films (13 & 19) disposed at a constant distance on a GaAs substrate (11) and having a light emitting layer (15) disposed at a loop position of a standing wave in the resonator, wherein

relative to the light emitting layer, a lower multi-layer reflecting film on the GaAs substrate is composed of plural layers of InAlP/GaAs and a top multi-layer reflecting film on the GaAs substrate is composed of plural layers of AlAs/GaAlAs.

Sugawara et al. do not expressly teach the lower reflecting films comprising a plural layer of AlGaAs and the top reflecting films comprising of plural layers of AlGaInP. However, Dutta (Fig.13) teaches the DBR formed on a GaAs substrate and noted that AlAs, AlGaAs, AlGaInP, GaInP or GaAs can be used as DBR materials (Tables 1 & 2). See also Col.7, line 55-Col.8, line 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute InAlP/GaAs & AlAs/GaAlAs of Sugawara et al. with AlAs/AlGaAs & AlGaInP as taught by Dutta, since both materials exhibit good reflecting characteristics.

Furthermore, one of ordinary skill in the art would have recognized that InAlP/GaAs & AlAs/GaAlAs and AlAs/AlGaAs & AlGaInP would work equally well as a substrate material for light emitting device.

Regarding claim 2, Sugawara et al. teach the light emitting layer is composed of an AlGaInP.

Regarding claim 3, Sugawara et al. teach a same conductive layer (21) as the GaAs substrate is disposed above the light emitting layer.


Regarding claim 5, Sugawara et al. teach that the current constriction structure is formed by a layer of AlGaInP.

### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
Donghee Kang  
Examiner  
Art Unit 2811

dhk  
June 11, 2003